

MANUFACTURE OF NITRIDE COMPOUND SEMICONDUCTOR

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Abstract

PROBLEM TO BE SOLVED: To provide a method by which a compound semiconductor of a nitride, such as GaN, InGaN, etc., having good crystallinity can be grown by using the metal organic chemical vapor deposition method.

SOLUTION: After a sapphire substrate 2 is set on a susceptor 3 in a reaction furnace 1, the substrate 2 is heated with a heater 4. By supplying a trimethylgallium gas 6 and methylazide gas 7 from a gaseous starting material introducing section 5, a GaN crystal is grown on the substrate 2. Since a compound expressed by RN_3 or a raw material containing an aromatic amine expressed by $C_6Q_nH_{5-n}NH_2$ (where, Q and n respectively represent an organic group and an integer of 0-5) in the molecular formula of the methylazide gas 7, etc., is used as a nitrogen source, the decomposition temperature becomes lower and the temperature of the substrate 2 can be lowered. Since the temperature of the substrate 2 can be lowered, the nitrogen taking-in efficiency is improved and the number of N-atom cavities becomes smaller. Therefore, the crystallinity of the crystal is improved.

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